CLAIMS

1. A print engine/controller configurable to be coupled with others to drive a multi-segment printhead comprising:

a memory buffer for receiving compressed page data;

image decoders to perform an expansion, in pipeline fashion, of the compressed page data;

a half-toner/compositer to composite respective strips of the decoded image planes; and

a printhead interface to output the composite strip to a printhead

the printhead interface including:

a multi-segment printhead interface outputting printhead formatted data; and

a synchronization signal generator outputting a synchronization signal to couple print engine/controllers to synchronize their respective strips at the printhead.

2. The print engine/controller of claim 1 wherein:

the pipeline fashion expansion further comprises the expansion, in parallel, of a JPEG-compressed contone CMYK layer and at least one other layer.

3. The print engine/controller of claim 2 wherein:

the other layer is a Group 4 Fax-compressed bi-level black layer.

4. The print engine/controller of claim 3 wherein:

the pipeline fashion expansion further comprises the expansion, in parallel with the layers, of a Group 4 Fax-compressed bi-level dither matrix selection map.

5. The print engine/controller of claim 2 further comprising:

a tag encoder for encoding bi-level infra-red tag data from the compressed page data.

6. The print engine/controller of claim 4 wherein:

the pipeline fashion expansion further comprises a second stage dithering of the contone CMYK layer using a dither matrix selected by the dither matrix select map.

7. The print engine/controller of claim 6 wherein:

the second stage further comprises a compositing of the bi-level black layer over a resulting bi-level K layer.

8. The print engine/controller of claim 7 further comprising:

the second stage further comprises the generation of an infra-red layer.

9. The print engine/controller of claim 7 further comprising:

the second stage further comprises the generation of a fixative layer.

10. The print engine/controller of claim 9 wherein:

the fixative layer is generated at each dot position according to the need in a C, M, Y, K or IR channel.

11. The print engine/controller of claim 1 wherein:

the pipeline fashion expansion is performed using a high speed serial interface, a standard JPEG decoder 28, a standard Group 4 Fax decoder, a half-toner/compositor unit, a tag encoder, a line loader/formatter unit.

12. The print engine/controller of claim 11 wherein:

the decoders and encoder are buffered to the half-toner/compositor.

13. The print engine/controller of claim 12 wherein:

the high speed serial interface is an IEEE 1394 interface.

14. The print engine/controller of claim 1 wherein:

the printhead interface includes an input at which a signal determines if the print engine controller is a master controller or a slave.

15. The print engine/controller of claim 1 wherein;

the half-toner/compositor scales input image planes under control of a margin unit set to establish print data for a strip of the image.